DOCUMENT RESUME

ED 370 319 EC 303 051

AUTHOR	Fouse, Beth; Brians, Suzanne
TITLE	A Primer on Attention Deficit Disorder. Fastback 354.
INSTITUTION	Phi Delta Kappa Educational Foundation, Bloomington, Ind.
REPORT NO	ISBN-0-87367-354-9
PUB DATE	93
NOTE	45p.; This fastback is sponsored by the Rose City Texas Chapter of Phi Delta Kappa.
AVAILABLE FROM	Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402-0789 ($1.25; Phi Delta Kappa members, $1).
PUB TYPE	Information Analyses (070) -- Reference Materials - Bibliographies (131)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adults; *Attention Deficit Disorders; *Classroom Techniques; Elementary Secondary Education; Etiology; *Intervention; Preschool Education; *Student Characteristics; *Symptoms (Individual Disorders); Teacher Role; Teaching Methods

ABSTRACT

This pamphlet explains briefly what is known about attention deficit disorders (ADD), to help parents and educators have a more positive influence on the ADD child's life. It begins with definitions of terminology; characteristics of preschool, school-age, and adult individuals with ADD; and causes of ADD. It discusses special problems associated with ADD, including academic problems, behavior difficulties, interpersonal difficulties, and self-esteem difficulties. Strategies effective in managing ADD are outlined, including medical management, behavioral strategies, cognitive-behavioral therapy, modifications in assignments and tests, and instruction in learning strategies. The pamphlet concludes that with appropriate management and treatment during the formative years, the individual with ADD can live a normal and productive life, and that it behooves educators to realize the important facilitative roles they serve in the overall treatment plan of children and adolescents with ADD. The pamphlet concludes with a list of 14 resources for educators, 8 resources for students, 9 resources for parents, and 8 parent support groups and organizations. (Contains 23 references.) (JDD)

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A Primer on Attention Deficit Disorder

Beth Fouse, Suzanne Brians

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A Primer on Attention Deficit Disorder

by
Beth Fouse
and
Suzanne Brians

Library of Congress Catalog Card Number 93-84639
ISBN 0-87367-354-9
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Bloomington, Indiana

This fastback is sponsored by the Rose City Texas Chapter of Phi Delta Kappa, which made a generous contribution toward publication costs.

The chapter sponsors this fastback in memory of Bill L. Turney, a charter member and past president of the Rose City Texas Chapter and president of Phi Delta Kappa International, 1975-1977.

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Introduction

More children than ever before are now being identified as having attention deficit disorders (ADD). Sometimes parents and teachers refer to the child as having ADD, based on what they have read or heard about attention deficit disorders. At other times, they just say that the child is "hyperactive." In some instances, parents or school personnel have obtained a medical or psychological evaluation that has identified a child as having ADD. Regardless of the source of identification, public schools are being asked to provide services for more and more students exhibiting characteristics of ADD.

It is difficult to go into any public school classroom without seeing at least one child whom teachers or others feel might have ADD. Individuals with ADD are found at all levels – preschool, elementary, and secondary. We now know that ADD persists into adulthood. It is not just the special educator who should know about attention deficit disorders; every educator should.

For educators and parents alike, these children can be very frustrating. They often appear to be lazy, disobedient, and destructive. It is often difficult to determine whether they are being noncompliant or truly are incapable of doing the assigned task. There is a strong possibility that these children will not attain their potential because the people in their environment – at home and at school – are not aware of the best methods for developing their strengths and teaching them to compensate for their weaknesses.

Although much research has been done in the area of attention deficit disorders, it is not readily available to parents, teachers, and administrators. The purpose of this fastback is to explain briefly to educators and parents what currently is known about ADD. Although not intended as a substitute for a clinical evaluation by a physician or psychologist, it should answer many questions for parents and educators – and in some cases, for ADD children themselves. By becoming knowledgeable about ADD characteristics and about appropriate treatment strategies, parents and educators can have a much more positive influence on the ADD child's life. Activities and interactions can be made more satisfying and frustrations can be minimized.

Attention Deficit Disorders: Definitions and Characteristics

Recently the education profession and the general public have become increasingly aware of a group of characteristics in children that has come to be called attention deficit disorders (ADD). Although the terminology has changed over the years, the descriptions of these characteristics have been consistent. Individuals exhibiting these characteristics have been described as being inattentive, easily distracted, impulsive, and hyperactive. Although many persons think of hyperactivity as being synonymous with this condition, individuals may exhibit ADD without hyperactivity. At one time, attention deficit disorders were classified as ADD with hyperactivity or ADD without hyperactivity.

Estimates of the prevalence of ADD varies from 3% to 5% of the general population (Braswell, Bloomquist, and Pederson 1991). The condition is much more common in boys than in girls, with experts reporting a ratio ranging from three to nine boys for every one girl. The average male/female ratio reported is 6 to 1. Although some researchers indicate that there is a higher prevalence of ADD in children from economically deprived backgrounds, most agree that ADD occurs across cultures and ethnic groups. It occurs in children and adults of all intellectual levels, including individuals who are gifted and talented. A significant number of individuals identified as having a learning disability also exhibit ADD.

Definitions

Historically, ADD was defined as a hyperkinetic disorder of childhood, brain damage syndrome, minimal brain dysfunction, hyperkinetic reaction, or hyperactive child. Over the years these terms have been replaced with the term, *attention deficit disorder*. Current diagnostic criteria in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, 3rd Edition-Revised (1987), or DSM III-R, identifies this condition as Attention Deficit Hyperactivity Disorder (ADHD). For the purposes of this fastback, the authors will use the terms attention deficit disorder and attention deficit hyperactivity disorder interchangeably.

According to DSM III-R, individuals with ADD must exhibit eight of the following characteristics over a period of at least six months:

1. Often fidgets with hands or feet or squirms in seat.
2. Has difficulty remaining seated when required to do so.
3. Is easily distracted by extraneous stimuli.
4. Has difficulty awaiting turn in games or group situations.
5. Often blurts out answers to questions before they have been completed.
6. Has difficulty following through on instructions from others.
7. Has difficulty sustaining attention in tasks.
8. Often shifts from one uncompleted activity to another.
9. Has difficulty playing quietly.
10. Often talks excessively.
11. Often interrupts or intrudes on others.
12. Often does not seem to listen to what is being said to him.
13. Often loses things necessary for tasks or activities at school or home.
14. Often engages in physically dangerous activities without considering the possible consequences.

DSM III-R also indicates that onset of this condition should occur before the age of seven. Additionally, individuals who meet the criteria for pervasive developmental delay should not be identified ADHD.

Causes of ADD

One of the first questions parents generally ask when confronted with the evidence that their child has ADD or ADHD is, "Why?" Another frequently asked question is, "What or who caused the problem?" No single causative factor has been identified or proven. Rather, several theories have been postulated by various researchers. There seems to be strong evidence that ADD occurs with greater frequency in certain families. Individuals with one or more parents and siblings with ADD are at higher risk for exhibiting ADD than those with no history of ADD in the family. Although the method of transmission is unknown at this time, research by Alan Zametkin of the National Institutes of Health strongly suggests that the symptoms of ADD are caused by malfunction in the frontal areas of the brain. He found that overall brain metabolism was lower in individuals with ADD. George Hynd also found that individuals with ADD had smaller right frontal regions of the brain. Other researchers are concentrating on the underarousal of the central nervous system as being a cause of ADD symptoms.

A large body of research has focused on the effect of diet on symptoms of ADD. Although many experts in the field believe that diet is a factor in less than 5% of individuals with ADD, many parents and educators believe that sugar and other food substances, such as red food dye and other food additives, may contribute to hyperactivity. There is also increasing evidence that such toxins as lead, nicotine, alcohol, and drugs passed from the mother to the fetus during pregnancy may contribute to the development of ADD symptoms. In other cases, perinatal trauma may contribute to the development of symptoms associated with ADD. Clearly, there is no one cause for all individuals exhibiting ADD characteristics.

Preschool Characteristics of ADD

Another question frequently asked by parents and teachers is, "How do I know if my child has attention deficit disorder?" At the preschool

level, this is particularly difficult to answer, since it is hard to differentiate the normal, active toddler or preschool child from one with ADD. Russell Barkley (1990) indicates that observation of a preschooler's behavior for a duration of 12 months is useful in making predictions about the presence or absence of ADD. To confirm a diagnosis of ADD, experts in the field believe that preschool children should exhibit at least 10 to 12 of the fourteen DSM III-R characteristics.

Many children show specific symptoms of the ADD syndrome by two years of age or earlier. As infants, these children are somewhat irregular and unpredictable in their biological habits. They do not establish routines in eating, sleeping, or elimination. Unfortunately for their tired parents, they generally need much less sleep than other infants of the same age. Some infants actually exhibit excessive activity levels in the mother's womb. These children are frequently very restless and difficult to hold. They may be accomplished "escape artists." They go straight from the crib into a fast run. Parents begin to feel that they never slow down. Evidence indicates that children who have allergies, frequent ear infections, and upper respiratory distress are at higher risk for exhibiting ADD.

In the toddler period of one to three years, the ADD child exhibits excessive moving about, seemingly without a focus. Parents report that they "never walk, they run." They are very impulsive. They act before they think. They touch everything. Approximately 50% of these children exhibit difficulties in coordination, which makes them appear to be awkward and clumsy. They may exhibit delays in areas such as fine and gross motor skills. They seem to be accident-prone, constantly getting in accidents that result in broken bones, severe cuts, etc. These children repeatedly get into things. They frequently spill, drop, or break things. They do not respond when parents and others tell them "No!" There may be delays in such self-help areas as toileting, which can be a real struggle with toddlers with ADD. Delays in speech and language are also more common in children with ADD.

Preschoolers of three to six years exhibit high levels of activity. According to parents and other significant adults, they are "into every-

thing" – touching and experimenting. They do not take turns or share during play activities. They may be excessively demanding during peer interactions, for example, impulsively hitting, pushing, or biting others. They tend to be fearless and reckless during play. They may appear to be unaware of such dangerous situations as crossing streets. They are accident-prone, with one boy out of four treated for accidental poisoning during the preschool years. They like to switch from one activity to another. Because of very short attention spans, they often are unable to sit at the table until the family has finished their meal, are unable to maintain concentration during learning activities, and have difficulty sitting still long enough to read or listen to a story or to put a puzzle together.

Preschoolers with ADD generally are noisy and talkative individuals. They are unusually strong-willed and may not be able to tolerate any type of frustration. They tend to "fall apart" when things do not go the way they want them to. As with the toddler, they tend to act before they think, seemingly unaware of the possible consequences of their actions. They may appear to be unresponsive to discipline. Although many preschoolers exhibit temper tantrums occasionally, the ADD child exhibits them with much greater frequency, duration, and intensity. In some cases, parents are alerted to the possibility of ADD when the severity of their child's behavior problems results in repeated teacher conferences or a request for their child to be removed from the preschool or day-care setting.

Elementary-Age Characteristics of ADD

The elementary school years are a time of increasing turmoil for ADD children, as it pervades all areas of their lives: academic, social, and emotional. Many of the behaviors parents had to contend with during the preschool years now increase in intensity as a result of increased pressures and expectations of school and the subsequent frustrations of parents on receiving reports from teachers about academic and behavioral problems.

The characteristics of ADD children in elementary school include a variety of behaviors that fall within three diagnostic areas: inattention, impulsivity, and hyperactivity.

Inattention. Children exhibiting this characteristic typically are easily distracted in class. They appear unable to listen for any extended period; they daydream and have difficulty staying on task. They have problems concentrating, are forgetful of assignments and due dates, manage their time poorly, and tend to procrastinate. Consequently, reprimands from teachers and parents abound; attempts at controlling and channeling this child into becoming more attentive begin with full force: "If Kevin would only listen. I know he can do better. He just needs to apply himself." Organized group sports are generally difficult because of these children's inability to attend to the game. For example, in baseball, they may be literally and figuratively out in left field. Inattention, therefore, generates an assortment of problems that pervade a child's life.

Impulsivity. This category of characteristics may be the most trying for parents and teachers. These children often are impatient. They act and speak before they think, blurt out in class without raising their hands, and have difficulty waiting their turn. They often appear to be fearless and thrill-seeking. They seem to be unaware of consequences; verbal warnings go unheeded. They often bother classmates who are trying to work. They have poor organizational skills. Their desks are messy. They often exhibit a very disorganized approach to studying. They may rush through assignments with little or no regard to accuracy or quality of work. In essence, this type of child exhibits a lack of self-control.

Hyperactivity. This category of characteristics is the most obvious. Teachers have no difficulty identifying hyperactive children because their behaviors are so overt and disconcerting. In class, they are fidgety, noisy, and appear to be always in fast gear. They skip or run instead of walk. They become overexcited easily, lose control in group activities, and become loud and boisterous because of environmental

overstimulation. They change activities frequently without completing any of them. They constantly are fiddling with pencils, paper clips, and anything else they can get their hands on during class. Many engage in other nervous habits, such as foot tapping, hair twirling, and finger tapping. Although many children exhibit hyperactive tendencies, it is the frequency, duration, and intensity with which it occurs that determines a diagnosis of ADD.

There is a significant group of ADD children who do not exhibit hyperactivity. These children typically are lethargic, forgetful, and disorganized. They tend to engage in daydreaming and avoidance behaviors when it comes to homework and chores. They are slow to initiate and complete tasks and thus are often labeled as "lazy." The basic characteristic for this group is being easily distracted.

Related Problems. Elementary-age ADD children are likely to encounter emotional, social, academic, and physical problems. Emotionally, these children have a low frustration tolerance and exhibit frequent mood swings, and their self-esteem is fragile. They tend to have a short fuse and blow up quickly. They become easily frustrated with themselves and others. They often express feelings of helplessness, discouragement, and of being overwhelmed.

Socially, ADD children can be over-intrusive in their interactions with others. They may monopolize conversations and often are argumentative, bossy, and stubborn. They seem to enjoy being on center stage and often are the class clown. They resist complying with demands of parents and teachers and become quite expert at annoying their classmates. This leads to rejection by their peers. For example, they often are the last to be chosen when groups or teams are formed. Although many children with ADD can be quite social, others have difficulty maintaining friendships because of their ineptness at perceiving social cues. In spite of these difficulties, ADD children can be quite sensitive and affectionate.

Academically, most ADD children underachieve because of incomplete assignments, careless mistakes, and poor study and organiza-

tional skills. It is common for their grades to fluctuate widely between grading periods. Although intellectual functioning ranges from average to gifted, there is a higher incidence of grade retention.

Physically, approximately half of ADD children have problems related to coordination. For example, they usually have poor handwriting.

Adolescent ADD Characteristics

Not too long ago, children were thought to outgrow the ADD syndrome as they progressed through puberty. However, recent studies indicate that a significant proportion (70% to 80%) of ADD diagnosed children continue to have academic, social, and emotional problems in adolescence. Symptoms persist and often intensify during this stage of development.

Adolescents with ADD pose a challenge for parents and teachers. The normal tensions during adolescence (demands for more freedom, choice of friends, pressure to get good grades, spending money, driving privileges, etc.) are compounded with the ADD adolescent who fails to comply with rules, does not assume responsibility for mistakes, blames others, makes failing grades, has impulsive spending habits, does not adhere to schedules, drives recklessly, and is unable to maintain stable relationships.

Because ADD adolescents have histories of frequent failure in a variety of areas, the likelihood of depression is high. Self-confidence is extremely fragile because of diminished hope for future success. Moodiness is prevalent. Social relationships may be strained due to their volatile mood swings. They have difficulty planning and prioritizing activities, both personal and school-related.

Adult ADD Characteristics

Continuation of ADD into the adult years is called ADD, Residual Type. In addition to attention deficits and possible motor abnormali-

ties, other symptoms of ADD adults include short temper and/or irritability, mood swings, low impulse control, poor organization, problems with task completion, and low stress tolerance.

Although ADD adults function effectively in activities they enjoy and find interesting, they have difficulty with tasks that are repetitive or unappealing. Activities that require attention to detail are a major source of frustration, for example, paying bills, balancing a checkbook, or organizing one's desk. They may exhibit excessive energy, be unable to relax, or appear to be very fidgety. An explosive temper or intrusive conversation interruptions may result in relationship difficulties and personal frustrations. They often appear impulsive because they are unable to delay gratification.

Although ADD adults face many problems in daily life, including a high incidence of clinical depression, these are compensated to some extent by their high energy levels and their determination to succeed in activities that relate to their personal interests.

Special Problems Associated with ADD

The cumulative effect of ADD symptoms contributes to a variety of problems in the areas of academic achievement, behavior, interpersonal relationships, and self-esteem. Some of these problems areas are discussed below.

Academic Problems

Poor concentration, distractibility, disorganization, poor time utilization, and inability to stay on task all affect ADD students' academic achievement. Frequently, these students receive low grades because they do not complete their homework or daily assignments. Many arrive home after school knowing that they have an assignment but having forgotten exactly what it is. If they do complete the assignment, it may be very hastily done, or they may forget to turn it in.

Some schools have responded to the problem of forgotten assignments by setting up one of the new computerized telephone-answering systems, which allow parents or students to call after hours and punch in certain numbers to find out assignments for specific classes.

As the ADD student moves through the grades, the gap between academic expectations and achievement increases each year. Concentration difficulties affect the ADD student's ability to learn new material. Not mastering information and skills one year prevents mastery of new material the next year. Unless specific intervention strategies

are used, the cycle of failure continues. Because of this cycle of failure, ADD students may develop an "I don't care" attitude. Many begin to feel that they will do poorly in academics regardless of the effort that they put forth. Therefore, they stop trying.

Behavior Difficulties

Because of their hyperactivity and impulsivity, ADD students are frequently in trouble in school. They are constantly out of their seats or yelling out without raising their hands. They frequently act without thinking. They even may inflict harm on classmates without intending to do so.

These students often learn at an early age to manipulate people and situations because of allowances made for their attention deficit disorder. Teachers and parents continually have to determine whether noncompliant behavior should require disciplinary measures or should be overlooked because of inability to comply with requests. Educators and parents must be careful not to allow ADD children to use their disability as an excuse for noncompliance. They must be taught to be responsible for their own behavior even when it is difficult to comply with certain demands.

Interpersonal Difficulties

Younger ADD children may be very rough playmates. Their impulsive actions may result in broken toys or unintentional harm to playmates. They may find it difficult to wait their turn in games or to follow agreed-on rules when the game is not going the way they want it to. Elementary-age ADD students may blurt out insulting or inconsiderate remarks to others or use devious methods to get others to respond to them. They also may exhibit immature behaviors and feel more comfortable with younger children.

Over time, peers become annoyed by their behaviors and begin to avoid them. Individuals with ADD at all ages may not know how to

make friends. They appear not to know how to approach individuals. Because they have difficulty interpreting social cues, they frequently do not understand why people do not want to be friends with them.

Parents and teachers find that they often have to provide direct instruction to ADD students on learning how to makes friends, a skill that normal children and adults pick up simply by observing others.

Self-Esteem Difficulties

Self-esteem, or the way one feels about oneself, is the foundation of one's personality, the key to a child's happiness. Building self-esteem in ADD children is crucial to their success in school, at home, and with friends. Because self-esteem is so fragile among many ADD children, parents and teachers must be alert to ways to foster healthy self-esteem. These children want to be loved and accepted; they want to behave well and achieve in school. Frustrated parents and teachers may push these children to the brink of despair, or they can serve as the catalyst for developing a sense of self-worth in these children.

Approaches for increasing self-esteem include focusing on the child's strengths, encouraging a sense of belonging, providing opportunities for responsibility, and being a good role model. Catch the child being good. Accentuate the positive. All children have gifts – some are obvious, some are not. Parents and teachers need to seek out and capitalize on these gifts, for example, hobbies, athletics, music, cooking, comedic talents, art, acting.

Because peer rejection is so common among ADD children, teachers and parents must find ways to develop a sense of belonging. As many as 50% to 60% of children diagnosed as ADD experience some form of social rejection from their peer group (Barkley 1990). Teachers and parents can encourage a sense of belonging by creating opportunities for ADD children to participate in social, academic, and recreational activities with a friend, a peer group, or within a family.

Providing opportunities for ADD children to take responsibility will enhance their sense of self-esteem. When they learn they can control

their lives, it helps to overcome negative feelings about some of their inadequacies. Tasks given to ADD children to develop responsibility should be reasonable and manageable. Help the child plan by establishing daily, weekly, and more long-term goals. Decision making and problem solving should be taught in systematic steps.

Good role models are imperative if positive behaviors are to be shaped. Because ADD children learn by observation and imitation, they need to see others modeling positive attitudes, problem-solving skills, effective communication, anger control, and organizing one's environment. In effect, parents and teachers need to practice what they preach.

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Effective Strategies and Techniques for ADD Students

There are many strategies and techniques that are effective in managing ADD. The choice will depend on the individual and the situation. However, rarely is one technique sufficient; usually a combination is more effective. In this section we describe some of the better-known strategies and techniques.

Medical Management

There has been much controversy over the use of medication to treat ADD students. For this reason, many parents and educators are extremely cautious about the use of medication. Nevertheless, for some children, adolescents, and adults, medical intervention may be an integral part of the ADD treatment. However, it should never be used as the sole treatment approach. ADD students must learn to be responsible for their own behavior. They should understand that the medication helps them to choose to behave in appropriate ways – not that the medication controls their behavior.

Although most ADD children respond positively to stimulant medication, the type of medication is determined by the symptomatology of the child. Here teachers must play a key role by observing and monitoring the child, both before and after the medication is taken. Collaboration among the physician, the parents, and the teacher is important in determining the type and dosage of medication.

Educators are not licensed to practice medicine. Therefore, they should never put themselves in the position of recommending medication for a certain child. If there are indications that medication may be needed, they can recommend a medical evaluation to determine whether medication is necessary. However, such a recommendation may require the school to pay for evaluation under the Individuals with Disabilities Act of 1990 or Section 504 of the Rehabilitation Act of 1973 (See fastback 360 *Implementing the Disabilities Acts: Implications for Educators*, by Patricia First and Joan Curcio.)

If parents already have had their child evaluated and the physician has prescribed medications, then teachers should ask parents pertinent questions. What medication was prescribed? When does the child need to take it? What possible side effects might be observed? Teachers will need to cooperate with the parents in observing the child's behavior and performance so that the physician can monitor and adjust the dosage level. Counselors or physicians may send questionnaires to parents and teachers to monitor any side effects and subsequent symptoms. Communication with the parents and/or physician is a must.

If it is necessary for the child to take medication at school, parents and teachers should consult with school officials to determine what school policies and procedures apply. Medication should be given discreetly, as some children are embarrassed that they need to take medication. Children should be informed about their attention deficit disorder and why medication is being prescribed. There are several books available for young children that explain the condition and the need for medication (see Resources for Students at the end of this fastback). Older students should be able to discuss their condition with parents, their teacher, or a school counselor.

The purpose of medications is to enable ADD students to focus their attention and behavior. The choice of medication depends on the problem. Stimulant medications, including Ritalin, Cylert, and Dexedrine, are most often prescribed for children with ADD. Ritalin, the most

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frequently prescribed stimulant medication, is said to be the safest and with the fewest side effects. Choice of stimulant depends on the child's responsitivity and sensitivity to the medication. Trial dosages usually are administered in order to determine the child's response, and dosage is adjusted accordingly. Maximum effects of stimulant medications usually occur within one to two hours.

The most frequent side effects of stimulant medication are temporary suppression of appetite and possible insomnia. Less frequent side effects include: headache or stomachache when the child begins taking the medication; some lethargy, which often signals too high a dosage; tics, which may be evidence of a tic disorder; or growth suppression, which most experts agree is temporary and poses little risk of any long-term effects on weight or height. Should tics occur, parents should contact the physician, since this is a contraindication to taking stimulant medication.

Positive effects of stimulant medication include less distractibility, more reflection, improvements in attention focusing, and concentrating for longer periods of time. Usually the students' overall awareness of self improves, resulting in improved self-control and better problem-solving abilities.

In the past, stimulant medications generally have been discontinued at puberty. However, it now appears that the length of time students need to take stimulant medications is an individual matter. Some are able to discontinue medication once sufficient alternative strategies have been learned to compensate for the symptoms associated with ADD. Others have found that they need to continue taking stimulant medication into adulthood. Many adults who previously had discontinued stimulant medications at puberty have now begun to take the medication as adults.

The second category of medications is the antidepressants. These may be the choice for those children who have significant degrees of depression or anxiety in addition to ADD. Although these medications often take several weeks to reach full effectiveness, their ef-

fects are more long-lasting than the stimulants. Appetite is not suppressed; sleep is not disturbed; and there may be an improvement in mood. Possible side effects include dry mouth, drowsiness, and headaches.

Although stimulant and antidepressant medications are the first two choices of medication, there are additional medications that can be used depending on the symptomatology. Clonidine, an antihypertensive, is a medication of choice for those ADD children who are extremely aggressive, highly aroused, or develop tics with stimulant medication, and with overfocused children and adolescents. Although a therapeutic effect may be evidenced within one hour, optimum effectiveness may not be achieved until one to two months after initial administration.

Medical intervention, when combined with other appropriate therapies, serves an important role in the treatment of ADD. The educator's role is to observe and monitor behaviors and communicate with parents and medical professionals regarding their observations. In many situations, school officials also will be responsible for administering the medication once the physician has prescribed it.

Behavioral Strategies

Behavioral strategies play an essential role in the total treatment plan for ADD children. There are a variety of methods for modifying and shaping behavior. Basically, behavioral modifications are instituted to reinforce positive behaviors through rewards and to reduce problematic behaviors through negative consequences. Teachers' and parents' knowledge about and attitudes toward ADD are critical factors contributing to the success of a behavioral management program for children and youth.

Establishing rules, positive and negative consequences, and an orderly environment are essential for improving behaviors in the ADD child. Clearly stated rules and expectations are imperative. Wherever possible, rules should be stated positively and directions should be

stated explicitly. Having the child repeat the directions helps to ensure understanding. Once rules are established, they should be posted, given to the student as a hand-out, and sent home to the parents. Previously explained consequences should be delivered immediately following either positive or inappropriate behavior.

The form of reinforcement used will depend on the developmental age of the child and the creativity of the teacher or parent. Commonly used rewards include tokens, tickets, verbal praise, stickers, special privileges, and edibles. Commonly used negative consequences include ignoring, time out, loss of privileges, and reprimands.

Behaviors should be reinforced immediately and frequently. Children should be able to earn rewards quickly so they do not give up on trying to improve their behavior. Ideally, there should be more opportunities for rewards than for negative consequences. Teachers who consistently use negative consequences without including any positive ones will create an environment that is counterproductive to the child's academic and emotional well-being.

The success of the behavior management program at school requires collaboration and continuity from the home. Daily or weekly progress reports are an effective way of giving regular feedback regarding target behaviors. The teacher completes a brief report or rating scale, which the child takes home every day for the parent to read and sign and return the next day. Examples of behaviors that might be rated on the report are: obeyed class rules, completed homework, paid attention in class, and completed work in class. The teacher rates each behavior according to previously agreed-on criteria. The child may be rewarded even for remembering to take the report home and then return it, as well as for other positive behaviors.

Environmental structure is a necessary ingredient in modifying the behavior of ADD children. They need routine and predictability in order to instill a sense of organization. Modeling organizational skills helps the ADD child learn how to organize time and tasks. For example, allowing daily time to tidy his desk will provide the child with

a sense of an orderly work environment. Posting time frames for completing assignments and breaking down long assignments into a series of mini-assignments, each with its own deadline, assist the child in managing time and learning to plan ahead. Minimizing auditory and visual distractions both at home and at school enables the child to work on assignments without interruptions, thus facilitating greater success in task completion.

An effective behavior modification program requires that teachers know a variety of techniques and be creative in implementing them. It requires teachers who are optimistic and committed to the belief that ADD children can learn appropriate behaviors. It requires teachers who never give in to the frustrations of the child wanting to give up on himself. This means that teachers must establish and nurture rapport with the ADD child and develop continuing cooperation from the parents.

Cognitive-Behavioral Therapy

Cognitive-behavioral therapy combines the behavioral management approach described above with a cognitive approach that involves problem solving, self-instruction, and self-monitoring. The components of cognitive-behavioral therapy involve self-management skills designed to help ADD children assume responsibility for their actions through systematic self-training.

This approach helps ADD children to recognize, confront, and cope with their problems by giving them a structured approach to tackling problems and thus reducing impulsivity. Cognitive-behavioral therapy teaches ADD students to recognize cues that trigger the onset of a problem, to generate plans to solve the problem, to select the best plan based on the consequences of each choice, to implement the plan, and finally, to reflect on the effectiveness of the choice. By using this problem-solving approach, students learn that if their initial plan did not work, they need to develop a new plan.

An important component of cognitive-behavioral therapy is teaching ADD students to engage in self-talk to help reduce impulsivity and to use positive self-statements when attempting to solve their problems. The eventual goal is to have them internalize the problem-solving steps so that they can self-instruct when a problem situation arises. They learn to stop and think before they act, to think through the problem and possible solutions. Using this process, they learn to control inappropriate behavior.

Another component of cognitive-behavioral therapy is teaching relaxation techniques. When ADD students realize they are getting frustrated, they can do such relaxation exercises as tensing and relaxing muscles and deep breathing, or they can engage in positive self-talk. Examples of positive self-statements might be: "I'm getting really mad, so I need to take deep breaths and relax." "I'm not going to get into trouble, so I'm not going to lose my homework." or "I can handle this." Teachers and parents can remind ADD students that put-downs are not allowed; for instance, "I can't do this," "I'm stupid," "I'm not going to try," and "What's the use?" Instead, ADD students must be encouraged not to give up, to try their best, and to learn from their mistakes. Students also can learn to replace their negative self-talk with positive self-talk; for instance, "Because I didn't do well on this test doesn't mean I'm a failure," or "I'm an OK kid, even if I don't make A's on all my tests."

Teachers and parents will need to remind ADD students that they are responsible for making a plan when faced with a problem. It is their responsibility to make a plan, to generate several options, to select the best one, and then to follow through with it. The final step, reviewing how well the plan worked, allows students to reflect on and learn from their choices. Appropriate home and school rewards can reinforce the student for using a plan.

Cognitive-behavioral therapy offers a structured and systematic process for helping ADD students approach their problems. Through parents' and teachers' guidance, modeling, and positive support, students

can learn to self-instruct using the steps of the strategy. Initially, role-playing hypothetical problems in the classroom gives ADD students experience in learning the steps. Regularly scheduled problem-solving sessions in the classroom provide students many opportunities to share the plans they have tried, both successful and unsuccessful, and to learn from each other. The process can be used effectively with academic, social, and behavioral problems.

Modifications and Strategy Instruction

For many ADD students, all that is needed to help them succeed in school are some modifications in assignments and tests. Modifications may be made by students' regular classroom teacher, a paraprofessional, or by a special teacher skilled in modifying lessons or assignments. Some schools have established "content mastery centers" where students can go to receive assistance when having difficulty with a specific assignment, though otherwise the students remain in their regular classes for all instruction. These centers generally have many modified materials for students to use; and staff are available to assist regular teachers in modifying their lessons, units, and assignments.

It is well documented that ADD students, regardless of the age or level of functioning, tend to be inefficient learners. Both teachers and parents can help these students become more efficient learners by teaching them learning strategies, just as we teach them behavioral strategies. These strategies are designed to teach students *how* to learn rather than what to learn.

Types of Modifications

There are numerous ways to modify assignments and tests. The form and content of material, as well as the method of presentation, may be modified. The length of the material may be shortened; students may be allowed additional time to complete the assignment or

test; the method of response may be changed; or the student may be allowed to take a test individually.

To determine what modifications may be needed, teachers should look at the learning styles of all the students in the classroom. Several short, informal learning-style inventories are available for determining a student's learning style. For example, the inventory may show that students are predominantly visual, auditory, or tactile/kinesthetic learners. If the student is a visual learner and the teacher presents most information orally, the student may have difficulty learning the material. It is not enough for the teacher simply to reteach by presenting material in the same manner; it should be presented in a different learning mode to accommodate the student's particular learning style.

Dunn and Dunn (1993) address learning styles by looking at the physical conditions and arrangements in the classroom. Some students prefer low light; some prefer bright light. Some prefer sound in the background, while other students need absolute quiet to study most efficiently. Some students learn best in groups, while others prefer to work alone. Teachers can address these preferences, for example, by providing for group study areas and individual study areas.

Still another aspect of learning styles is the left brain/right brain dominance. Left-brain learners are typically sequential, logical, and analytical. They solve problems by breaking them apart. Right-brain learners tend to be more holistic, creative, intuitive, and spontaneous. They solve problems by looking at the whole.

Students who are easily distracted should not be seated in high-traffic areas of the classroom, such as near the pencil sharpener, the door to the hallway, a window, or even the teacher's desk if students frequently go to the desk for assistance. In fact, seating them in the middle of the class with several model students around them may be the best solution. Students who are extremely distractible may need to have a study carrel in which to work.

Assignments for students with low frustration tolerance may need to be presented in smaller segments. For students who work very slowly, assignments may need to be shortened. Teachers usually can de-

termine whether a student has mastered a concept or skill after completing six to eight exercises, rather than requiring them to complete 15 or 20. Sometimes, they are able to learn 10 to 15 spelling words but not 20 or 25. These students also benefit by having the teacher highlight directions and essential information. Sometimes, directions will need to be rewritten or even read to the student orally.

If students have problems with handwriting, taking notes may be very difficult. This might be resolved by allowing the student to tape record lectures, by having a buddy make carbon notes or copies of notes, or by the teacher providing a copy of notes for the student. Also, students might be allowed to use a different response mode for assignments. For example, instead of writing an essay, the student might be allowed to dictate the essay into a tape recorder or do an oral report. If the student happens to be talented in art, he might be allowed to draw a picture, a cartoon, or a comic strip sequence instead of writing a report about the story or book.

For some students with visual perceptual problems, simply rearranging items on a test might make a significant difference. For example, answers to multiple-choice items should be listed vertically rather than horizontally. Matching questions can be broken into smaller groups. If the test has 20 matching items, break it into two or three sections with seven to 10 items in each section. Students also generally perform better if the test is typed rather than handwritten. These test modifications are extremely helpful for ADD students. In fact, many teachers choose to use the modified test with all students, since the actual questions are not changed, just the format in which the questions are presented.

The amount and type of modifications made should be determined by the students' needs. The types of modifications are limited only by the creativity of the instructor. For example, a building trades instructor painted the nails so that a visually impaired student could see them better when driving the nails into boards. As a result, this student was able to complete the same project as the other students. Through creative and flexible modifications, ADD students can and do learn the same content and skills that other students learn.

Strategy Instruction

Teachers and parents of ADD students need to help them develop more efficient learning strategies. If they are to become lifelong learners, they need to know *how* to learn. Strategy instruction can be used in all content areas, as well as for developing appropriate social skills. Some of the strategies are self-questioning, verbal rehearsal and review, organization, using prior knowledge, memory strategies, predicting and monitoring, advance organizers, modeling, and self-monitoring. (See fastback 345 *Learning Strategies for Problem Learners*, by Thomas P. Lombardi.) Strategy instruction is most effective with learners who are functioning above the third-grade reading level, have an ability to deal with symbolic as well as concrete learning tasks, and have an average intellectual ability (Deshler et al. 1979).

In strategy instruction the teacher first determines the curriculum demands with which the student is having difficulty and then matches a learning strategy to meet the specific demands. In teaching the strategy, the instructor determines the student's current learning habits and then describes and models the new learning strategy. The student should verbally rehearse the strategy and practice with controlled materials followed by classroom materials. The teacher then evaluates to determine student mastery of the strategy. Some of the strategies most helpful for ADD students are discussed below.

Since ADD students are frequently disorganized, they will benefit from learning organizational strategies. These students need to get into the habit of making lists of things they need to accomplish – assignment sheets, to-do lists, daily schedules, monthly schedules, before-leaving-for-school checklists, before-beginning-to-study checklists, etc. Many ADD adults report that their success depends on being "superorganized" in order to compensate for their tendencies toward disorganization. Students need help in learning how to organize a notebook. Students need to learn steps involved in completing longer assignments, such as term papers and projects. They also need to learn to develop timelines to guide them in completing various parts of an

assignment, instead of waiting until the night before the project is due to start.

As students move into high school and college, note-taking skills become increasingly important. Although ADD students are encouraged to tape record lectures, they still need to learn note-taking skills. Slot outlines of lectures are one way that instructors can assist students to learn to take notes. The slot outline lists the major topics for which students should be listening during a lecture. Students also should learn to take notes from textbooks. And they need to learn how to edit their notes and construct study sheets to review before taking a test.

Graphic organizers, or "mind maps," are excellent techniques for students to use when taking notes. There are many types of graphic organizers, such as story maps or semantic maps that students can use to organize material from stories, books, and texts. Other types of graphic organizers illustrating cause/effect and comparison/contrast help students to organize what they have read.

In the content areas, ADD students often need to learn effective study skills. One widely used method developed by Robinson (1961) is the SQ3R technique. This acronym stands for survey, question, read, recite, and review. Other reading strategies include teaching students how to find the main idea, how to predict, how to scan, how to survey the textbook, how to preview a textbook assignment, and how to mark textbooks.

A strategy useful in identifying unfamiliar words in content materials is called DISSECT (Ellis and Lenz 1987). This mnemonic means:

D: Discover the context.
I: Isolate the prefix.
S: Separate the suffix.
S: Say the stem.
E: Examine the stem.
C: Check with someone.
T: Try the dictionary.

A frequently used strategy for checking one's written work is known by the mnemonic COPS, which means:

C: Capitalization of first word in a sentence and proper names.
O: Overall appearance.
P: Punctuation.
S: Spelling.

Another mnemonic in the area of written expression is TOWER (Mercer and Mercer 1989).

T: Think.
O: Order ideas.
W: Write.
E: Edit.
R: Rewrite.

Mnemonics like the ones described above are a useful strategy for learning basic facts and processes. They have been used in mathematics, spelling, reading, and writing, as well as in the content areas. Another example is HOMES (Huron, Ontario, Michigan, Erie, Superior) to remember the five Great Lakes. Other strategies include word links, where you use the meaning of one word to associate with another. Poems, rhymes, nonsense verses, lyrics, and raps are useful for remembering vital information. One well-known mnemonic is **FACE** and **E**very **G**ood **B**oy **D**oes **F**ine for remembering the spaces and lines on a musical staff.

Many ADD students exhibit extreme test anxiety. To remedy this, students should learn test-taking skills. (See fastback 291 *Preparing Students for Taking Tests*, by Richard L. Antes.) They should be taught how to prepare for tests, intelligent guessing techniques, using time wisely, and specific strategies for the different types of tests, such as multiple-choice, true/false, matching, fill-in-the-blank, and essay tests.

The techniques described in this chapter are only a few of many that can be effective with ADD students. Selecting the technique to use will depend on the individual and the situation. Rarely is one technique sufficient. Generally, a combination of medication, behavioral strategies, cognitive-behavioral therapy, modifications, and strategy instruction is most effective.

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Conclusion

In *Hyperactive Children Grow Up*, Weiss and Hechtman (1986) have collected comments from ADD adults, which indicate that they valued most the caring and positive relationships they had with those who helped them with their problems in childhood. Although most of these adults selected a parent as the person who encouraged them and believed in them, many selected a teacher, a principal, or a school counselor. Therefore, it behooves educators to realize the important facilitative roles they serve in the overall treatment plan of children and adolescents with ADD. These roles extend from diagnosis and guidance for both students and their parents to making instructional modifications in the classroom.

Attention deficit disorder is a chronic and pervasive condition that often extends into adulthood. Although there is no cure for ADD, there is ample evidence to indicate that early diagnosis combined with a multimodal treatment plan can significantly influence the school and life success of children, adolescents, and adults with ADD. With appropriate management and treatment during the formative years, the individual with ADD can live a normal and productive life.

To remind us of our roles as educators, the words of noted psychologist Arthur T. Jersild seem a fitting conclusion for this fastback.

> Every teacher is in his own way a psychologist. Everything he does, says, or teaches has or could have a psychological impact. What he

offers helps children to discover their resources and their limitations. He is the central figure in countless situations which can help the learner to realize and accept himself or which may bring humiliation, shame, rejection, and self disparagement. (from *In Search of Self*)

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Resources

Resources for the Educator

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Parent Support Groups and Organizations

ADDA Support Group Hotline: 1-800-487-2282.

ADD WareHouse, 300 N.W. 70th Avenue, Suite 102, Plantation, FL 33317. 1-800-233-9273. (A distributor/publisher specializing in products for attention deficit disorder/hyperactivity.)

ADDult Support Network, 2620 Ivy Place, Toledo, OH 43613.

Attention Deficit Disorders Association (ADDA). National Headquarters, 8091 S. Ireland Way, Aurora, CO 80016. (303) 690-0694.

Attention Deficit Disorders Association, Southern Region. State Headquarters, 12345 Jones Rd., Suite 287, Houston, TX 77070. (713) 955-3720.

C.H.A.D.D. Children with Attention Deficit Disorders. National Headquarters, 499 N.W. 70th Avenue, Suite 308, Plantation, FL 33317. (305) 587-3700.

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